Abstract

THESIS PROJECT: The effect of Hydrological Connectivity on Benthic Macroinvertebrate Communities and Heavy Metal Concentrations in Oxbow Lakes Along the Wabash River, Indiana

STUDENT: Daniel Cassel

DEGREE: Master of Science

COLLEGE: Sciences and Humanities

DATE: May 2020

PAGES: 44

The Wabash River in the Midwest United States flows through Indiana then flows along the Indiana and Illinois border until it reaches the confluence with the Ohio River. In the most southern stretch of the Lower Wabash River three lentic oxbow lakes reconnect to the river during flood events. Hydrologic reconnection can affect physiochemical parameters and heavy metals in the upper layer of sediment and throughout the water column. Benthic macroinvertebrates communities can also be affected by flooding events through scouring of the benthic layer and changes in physiochemical parameters. This study shows that flooding events influenced physiochemical parameters and caused a decrease in heavy metal concentrations (Co, Cu, Pb, and Mn). Flooding events also caused a decrease in benthic macroinvertebrate abundance, taxonomic richness, and Shannon diversity. Further, the relative abundance and spatial trends of benthic macroinvertebrates were influenced by flooding events. This shows that hydrologic reconnection can influence the ecology of lentic oxbow lakes.